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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/669,748	09/25/2003	Cheol-Hee Moon	P56909	4498

7590 05/15/2006
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EXAMINER

GUHARAY, KARABI

ART UNIT PAPER NUMBER

2879

DATE MAILED: 05/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/669,748

Applicant(s)

MOON, CHEOL-HEE

Examiner

Karabi Guharay

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Amendment, filed on 4/7/2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4,5,7-12,14-22,24 and 25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12,14,17-19 and 24 is/are allowed.
- 6) ☒ Claim(s) 1,4,5,7-11,15,16,20-22 and 25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>4/24/06</u> . | 6) <input type="checkbox"/> Other: _____ |

Response to Amendment

Amendment, filed on 07 April 2006 has been considered and entered.

Upon further reconsideration and search, the finality of the rejection of the last office action, mailed on 11 January 2006 has been withdrawn, and further allowability of subject matters of claims 3-4 and 15-16 have been withdrawn.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4-5, 7-11, 20, 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al. (US 6008582), further in view of Kobayakawa et al. (US 4,047066).

Regarding claims 1 & 25, Asano discloses a PDP, comprising (see Figs. 4 and 5 in view of Fig.1) a front substrate 10 and a rear substrate 3 opposing one another with a predetermined gap there between, a plurality of display electrodes 4,5 formed on the front substrate, a dielectric layer 6 formed on the front substrate covering the display electrodes; a plurality of first barrier ribs 1a, 1b, 1c and a plurality of second barrier ribs 52a, 52b, 52c formed on the rear substrate essentially perpendicular to each other forming an array of discharge cells 2a, each discharge cell being completely surrounded by said first and second barrier ribs; a plurality of phosphor layers 9 formed in the discharge cells; and a plurality of electrically conductive address electrodes 8 being

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formed orthogonal to the display electrodes in the discharge cells, said address electrodes being parallel to said first barrier ribs, the address electrodes being coated with a dielectric material (see Col. 4, lines 43-44), wherein a phosphor layer is further coated on an outer circumference of the dielectric material coating the address electrode (see Fig. 1 in view of Col. 4, lines 43-44).

But Asano fails to disclose fixing grooves in edges of the rear substrate at areas corresponding to terminal areas of each address electrodes, where fixing grooves securing the terminal ends of the address electrode.

However, in the same field of plasma display (lines 1-17 of column 1) Kobayakawa discloses the means for fixing the ends of the electrode terminal, where the means are grooves formed at the peripheral edges of the substrate for snugly attach the terminals of the electrodes and connecting the electrodes to the external circuit (see Fig 2 & Fig 3). Such an arrangement of fixing grooves provides mechanically strong terminals (lines 19-57 of column 2).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have fixing grooves, as taught by Kobayakawa et al., for the address electrodes on the substrate of the device of Asano et al., since such arrangement provides a mechanically strong fixation of the terminals of the electrode.

Regarding claim 4, Kobayakawa et al. disclose that the terminal ends of the electrode positioned in the fixing grooves are further secure by an adhesive member (frit glass 20, lines 61 of column 3-24 of column 4). The same reason for combining as in claim 1 applies.

Regarding claim 5, Asano discloses a height t_2 of the second barrier rib being less than a height t_1 of the first barrier ribs (see Figs. 4-5).

Regarding claims 7 and 10, Asano discloses the claimed invention except for the limitation of the address electrodes having a circular cross section and the discharge cells having a circular shape.

However, it has been held that a change in shape is generally recognized as being within the level of ordinary skill in the art. Thus, it would have been obvious to one having ordinary skill in the art to provide the address electrodes with a circular cross section and the discharge cells with a circular shape, since such a modification would have involve a mere change in the shape of a component. See for example Kao (US 6,495,967) and Kunii (US 6,608,441) for evidence of discharge cells having a substantially circular shape; and Moore (US 6,459,200) for evidence of wire electrodes having a substantial circular cross section.

Regarding claim 8, Asano discloses conductive wires forming the address electrodes being polygonal in cross section (see Fig. 1).

Referring to claim 9, Asano discloses the discharge cells 2a defined by the first and second barrier ribs having a polygonal shape (see Figs. 4-5).

Referring to claim 11, Asano discloses the discharge cells defined by the first and second barrier ribs being rectangular and staggered to discharge cells on an opposite side of a first barrier rib (see Figs. 4-5 in view of Fig. 1).

Referring to claim 20, Asano discloses the address electrodes being realized through electrically conductive wires.

Claims 1, 15-16, 22 are rejected under 35 U.S.C. 103 (a)) as being unpatentable over Kato et al. (US 6,670,757), further in view of Kobayakawa et al. (US 4,047,066).

In regards to claims 1 & 15, Kato discloses a PDP comprising (see at least Figs. 7, 9, 25 and 26): a front substrate 10 and a rear substrate 20 opposing one another with a predetermined gap there between; a plurality of display electrodes 41,42 formed on the front substrate; a dielectric layer 11 formed on the front substrate covering the display electrodes; a plurality of barrier ribs formed on the rear substrate comprising a plurality of first barrier rib members 21 formed in a direction orthogonal to the display electrodes, and a plurality of second barrier rib members 23 formed in a direction parallel to the display electrodes, the first barrier rib member intersecting the second barrier rib members (see at least Fig. 7, in view of Col. 11, lines 28-35), the plurality of barrier ribs forming an array of discharge cells, each discharge cell being bounded by a pair of first barrier rib members and a pair of second barrier rib members, a phosphor layer 22 being formed in respective discharge cells; and address electrodes 31 comprising conductive wires and coated with a dielectric material 24, the address electrodes being mounted on the second barrier rib members (see Col. 11, lines 28-35), the address electrodes being orthogonal to the display electrodes.

But Kato et al. fail to disclose fixing grooves in edges of the rear substrate at areas corresponding to terminal areas of each address electrodes, where fixing grooves securing the terminal ends of the address electrode.

However, in the same field of plasma display (lines 1-17 of column 1) Kobayakawa discloses the means for fixing the ends of the electrode terminal, where

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the means is grooves formed at the peripheral edges of the substrate for snugly attach the terminals of the electrodes and connecting the electrodes to the external circuit (see Fig 2 & Fig 3). Such an arrangement of fixing grooves provides mechanically strong terminals (lines 19-57 of column 2).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have fixing grooves, as taught by Kobayakawa et al., for the address electrodes on the substrate of the device of Kato et al., since such arrangement provides a mechanically strong fixation of the terminals of the electrode.

Regarding claim 16, Kobayakawa et al. disclose that the terminal ends of the electrode positioned in the fixing grooves are further secure by an adhesive member (frit glass 20, lines 61 of column 3-24 of column 4). The same reason for combining as in claim 1 applies.

Referring to claim 22, Kato et al. disclose that each of the plurality of address electrode 31 being mounted on the second barrier ribs (23).

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al. (US 6,008,582) or Kato et al. (US 6,670,757) in view of Kobayakawa (US 4,047,066), as applied to claim 1, further in view of Mun KR 102000-0039002).

Asano and/or Kato disclose the claimed invention except for the limitation of the address electrodes being completely surrounded by the dielectric material and the dielectric material being completely surrounded by the phosphor layer. However, in the same field of endeavor Mun discloses a PDP having an address electrodes completely surrounded by a dielectric material and phosphor layer, with the purpose of enlarging

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the phosphor area, thus increasing the luminance of radiation (see Page 9-3, paragraphs 18-24).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to completely surround the address electrode with a dielectric material and phosphor in order to enlarge the phosphor area, thus increasing the luminance of radiation.

Allowable Subject Matter

Claims 12, 14, 17-19 and 24 are allowed over the prior art of record.

The following is a statement of reasons for the indication of allowable subject matter:

Claim 12 includes the allowable subject matter of "grooves are formed in distal ends of the second barrier rib members into which the address electrodes are inserted.

Claims 14, 17-19 & 24 are allowed for the same reason as claim 12 for their dependency status from claim 12.

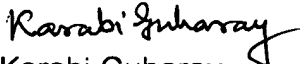
Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karabi Guharay whose telephone number is (571) 272-2452. The examiner can normally be reached on Monday-Friday 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (571) 272-2457. The fax phone number for the organization is (571) 273-8300

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Karabi Guharay
Primary Examiner
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